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RAILWAY COMPETITION: A PROBLEM IN STATISTICS.

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The interstate commerce law, which has now been in force nearly nine years, declares illegal certain practices believed to be evil in their tendencies, and prescribes a series of remedies. The first three sections forbid all excessive or unjustly discriminating charges for railway service, while the fourth adds a rule of evidence, imposing upon the carrier making a higher charge for a shorter intermediate service than for a longer one in the same direction the burden of sustaining the relative equity of the higher charge by showing that substantially dissimilar circumstances or conditions govern the shipments accepted at the different rates. Each of the three remedies which the law sought to apply had been previously advocated as in itself a sufficient measure of relief. These three remedies are: —

(1) The perpetuation of competition among railways.

(2) A summary process for hearing and adjudicating complaints arising under the law, and for enforcing proper redress of discovered injustice.

(3) Publicity for the details of railway management and operation.

No intelligent student of the problems of railway transportation now denies that the attempt to perpetuate competition by means of the anti-pooling provision embraced in the fifth section was a grievous mistake, and has seriously hindered the remedial operation of the remaining portions of the law. Its effect is to force upon the railways an unnatural and uneconomic competition, destructive alike to earning capacity, sound business methods, and official probity, which does not confer upon railway patrons even partially compensatory benefits. It has proved to be prolific in the production of unjust discriminations and extravagant expenditures, and the occasional evasions have been accomplished only by the creation of elaborate, cumbrous, and expensive machinery, which unsatisfactorily executes, by complex methods, the naturally simple task of equitably dividing competitive traffic. That this provision continues to encumber a statute with the fundamental purpose of which it is in irreconcilable conflict is due to the fact that a bill, which passed the House of Representatives by an overwhelming majority during the last session of the Fifty-third Congress, was defeated in the Senate, because the rules of that body, coupled with the opposition of a numerically insignificant minority, and the near approach of the end of a short session, made it impossible for its friends to secure a vote upon its passage.

Judicial interpretation has practically emasculated the second remedy by claiming for the United States courts, to which the Interstate Commerce Commission is forced to resort in order to secure the execution of its decrees, the right to examine every case from the beginning, and denying any finality whatever to the proceedings before the Commission; and, while there is occasional compliance with the orders of the Commission, it is only in those cases in which the reasoning upon which they are based is so clear that the defendant railways are unwilling to assume the responsibility for refusal to obey mandates that are certain, eventually, to receive the endorsement of public opinion.

The only remedy remaining, and the only one which has not utterly failed to perform the service for which it was intended, is that which operates through turning enlightened public sentiment into a remedial force. The preliminary condition essential to the evocation of this force is publicity, and the principal means for securing this, provided in the act, are: —

(1) Requiring carriers to print, publish, and file with the Interstate Commerce Commission all schedules of charges.

(2) Requiring carriers to file copies of all agreements with other common carriers relating to traffic subject to the law.

(3) Investigations and reports by the Interstate Commerce Commission.

(4) Collection of railway statistics.

In this paper it is proposed to discuss a single phase of the latter of these measures, and to point out one of the many directions in which there is reason to believe that the statistical investigation of railway transportation might profitably be extended.

The importance of the intelligent application of the statistical method to the study of so vast an industry as that of moving persons and property by rail within the United States does not require argument at this time. The principal facts regarding an investment represented by eleven billion dollars of stocks and bonds, an industry giving direct employment to 800,000 men, and from which 4,000,000 persons derive their support, a machine that moves 170,000 tons of freight and 27,000 passengers one mile during every minute, must be stated, examined, compared, considered, and digested numerically or not at all. Prior to the passage of the act to regulate commerce, statistics of the railways of the United States were fragmentary and incomplete, or occasional and disconnected. Those officially compiled were exhausted when the transportation volume of the Tenth Census and the reports prepared by Dr. Nimmo for the Bureau of Statistics of the Treasury Department had been

consulted. The next and last resort of the investigator was to the unofficial reports compiled by private parties from whatever data railway officials found it convenient or deemed it expedient and profitable to furnish. Now, however, there are available seven volumes of official reports, each describing the business of railway transportation as conducted during a particular fiscal year, and the condition of the railway system at its close. They have been compiled upon a scientific and ably conceived plan, and the continuity of purpose by which they are characterized adds greatly to their value, while, unfortunately for the results of the other work, it differentiates them from many of the reports of federal statistical investigations. Together they furnish legislators and students with a more accurate and comprehensive description of the business of railway transportation in the United States than is available for any other country, or for any other industry at home or abroad.

During the period from July 1, 1887, to June 30, 1894, which is covered by these reports, the average rate of fare collected from each passenger declined from 2.349 cents to 1.986 cents per mile, or 15.45 per cent, and the average rate of freight per ton per mile from 1.001 cents to 0.860 cent, or 14.09 per cent. If this decline had not taken place, and the railways had been able to collect for moving the traffic carried during 1894 the rates of 1888, they would have earned $51,870,688 from passengers, and $113,272,498 from freight, or a total of $165,143,186 more than they actually received. The total amount paid in dividends during the later year was $95,515,226, or only 57.83 per cent of the amount saved to the public by reduced rates. The par value of railway stock receiving no dividends during 1888 was $2,374,200,906, or 61.44 per cent of the total. In 1894 the amount thus portionless showed both an absolute and relative increase, having reached $3,066,150,094, or 63.43 per cent of the total. During the later year no interest was paid upon $914,757,607 of funded debt as against $827,554,319

in 1888, and, though in this instance there was a slight relative decrease, the par value of capital receiving no return during 1894 amounted to 39.31 per cent of the aggregate. The public saving from reduced charges, if retained by the railways, would have paid dividends and interest averaging 4.15 per cent on this barren stock and unfruitful funded debt. The average return to all classes of railway capital was 3.32 per cent, but had rates upon the traffic carried been maintained at the level in force during the first year of the period the additional return to investors would have made the average 4.85 per cent.

From 1889 to 1894 the average revenue per train mile declined 1.60 per cent, while the average cost of running a train one mile could be reduced only 1.47 per cent, indicating a loss of net train earnings per mile run. Insignificant as this loss may appear, when stated in this manner, it represents a reduction in net revenue per train mile from 44.323 cents to 43.480 cents, which, applied to the train mileage of 1894, is found to be equivalent to a loss, to the railways, of $6,519,007 of net revenue. This indicates that it has been impossible to reduce operating expenses as fast as charges have been forced downward, and the truth of this is clearly apparent when it is learned that operating expenses which in 1889 were 66.81 per cent of the gross income from operation were 68.14 per cent of such income in 1894.

Passing from the fact of diminished returns to their consequences, it is found that during the year ending on June 30, 1894, there were 192 railway companies, operating more than 42,000 miles of line, and representing one-fourth of the total railway capitalization, in the hands of receivers. During the same year the income of the railways in a section including 52 per cent of the area of the United States did not earn enough above the actual cost of operation to pay their fixed charges.

These statistics of decreasing returns to investors, financial disaster, and widespread insolvency, clearly indicate that the

present railway charges are not too high, unless it is desirable to reduce all railway corporations to a uniform condition of hopeless bankruptcy. There is no public interest which demands that railway charges shall be so low as to be unremunerative. Too low charges invariably result in the speedy impairment of railway service through the physical deterioration of road-bed and equipment, and the reduction of the efficiency of the safeguards against accident usually provided, thus materially increasing the danger to life and property. The expenses due to handling traffic and moving trains are much less elastic than those incurred for keeping up the quality of track, rolling stock, and signalling apparatus; and when depleted revenues enforce upon railway managers the necessity of immediate retrenchment, the latter are most likely to suffer. Thus, when, during 1894, reduced traffic, low rates, and dwindling earnings required a reduction of 93,994, or nearly 11 per cent, in the number of men employed by the railways, nearly one-third of the entire number was taken from trackmen, their number being reduced 16.34 per cent, though they usually constitute only about one-fifth of the aggregate number of railway employees. The decrease in the number of employees per 100 miles of line, assigned to the maintenance of way and structures, was 18.54 per cent; in those assigned to maintenance of equipment, 16.50 per cent; while in those assigned to conducting transportation it was but 11.11 per cent. During the same year the expenses of operation were reduced 11.66 per cent, as compared with the previous year. Of the total decrease, $96,506,977, there was taken from the expenditures incident to the maintenance of way, structures, and equipment, 51.36 per cent, though these combined constituted during the previous year only 36.98 per cent of the total cost of operation.

Though expedients like the foregoing will invariably be resorted to, and interest and dividends paid by reducing the quality of the service rendered, they are necessarily temporary, and, eventually extravagant as physical deterioration,

increasing in geometrical progression, soon reach a point beyond which it may not be allowed to go, and final restoration is then found to cost much more than the total of the amounts which should have been regularly expended for maintenance. Unless revenues can be increased, the cost of such restoration must be taken from the return to investors, or met by new loans, and in either case bankruptcy is the usual and natural consequence.

The frequent failure of railway enterprises to prove remunerative, results in enhanced difficulty in the efforts to secure capital for the construction of new and often much needed lines, and in the exaction of conditions which afford at least a chance of extraordinary profits as an offset for what is regarded as the extra-hazardous nature of the investment. This opportunity for large returns very often takes the form of an excessive discount on the securities offered, or — what is much the same thing — a large stock bonus accompanying sales of bonds, these being among the most frequently deprecated methods of "stock-watering."

Practically, it may be declared that the public, considered as distinct from railway owners, must finally pay for all the transportation it receives, and that too low rates between particular points or during a particular period are not desirable, because, if for no other reason, they will inevitably be offset by too high rates between other points or during another period. Nor is this conclusion, as might appear, entirely satisfying to present railway owners, for long before the period of compensation arrives their interest may have been destroyed by insolvency, bankruptcy, and foreclosure.

It is apparent, then, that, considered from any reasonable standpoint, the present level of railway rates is too low rather than too high. This observation, however, relates only to the existing conditions of railway operation, which are chiefly characterized by the burden of unnatural and needless competition, which the public has imposed upon reluctant railway managers and owners. It is, no doubt,

possible to conceive different conditions under which economies could be devised that would prove sufficiently radical to render even lower rates than those now in force both practicable and profitable. Such a reduction in the cost of railway operation is the only direction that an important phase of railway reform can take. Railway charges cannot be generally raised without widespread disaster to industries that are dependent upon their continuance, at or below the present level, without substantially modifying the present basis of territorial exchanges of surplus products, nor without considerably increasing the cost to consumers of the commodities transported.

One of the most serious problems confronting legislators, students, and railway managers is to devise means whereby rates as low or lower than those now in force can be made reasonably and fairly remunerative. No one who has made an intelligent effort to deal with the problem has failed to perceive that, omitting the possibility of important new inventions, future retrenchment in the expenses of railway operation must be mainly accomplished by the elimination of the wasteful expenditures incident to competition for traffic. Though the existence of this source of loss is generally recognized, authentic statistics of the amounts wasted in the struggle for traffic between rival railways are exceedingly difficult to obtain, as the efficiency of most of the methods commonly resorted to in the effort to divert traffic from rival lines depends very largely upon the degree of secrecy attained in their execution, and for the further reason that many of these practices have been rendered illegal by statute, and are punishable by fine and imprisonment.

Among the most generally deplored results of competition is the practice of paying large commissions to influence the sending of traffic by particular lines. This is most frequently resorted to in connection with passenger traffic, and ticket agents are often allowed to retain large percentages from the sums charged for tickets between competitive

points as additional compensation for their sale. Each competing line endeavors to purchase the interest of agents by bidding a higher commission than that paid by others, and not infrequently a part of the allowance thus made is deducted from the rate charged a prospective passenger. In times of strenuous competition the same commissions are often allowed to ticket brokers or scalpers, and become an indirect means of rate cutting. The abolition of this practice, which has been a prolific cause of "rate wars," has often been attempted, but it has never been entirely abandoned, and, as long as competition continues, will probably be one of its ordinary weapons. According to a report made by the Interstate Commerce Commission, as the result of a special investigation of the subject, nine railways expended the sum of $1,097,130 for commissions during a single year.

The multitude of outside agencies, and travelling and other soliciting agents, involves another considerable expenditure that is solely due to competition. Their only object is to secure passengers and freight for their respective lines, and their cost is so great, even during seasons when rates are being fairly maintained, that it has often been found necessary to restrict their number by contract. It should be borne in mind that multiplicity of such agencies is, under present conditions, of no value to the travelling or shipping public. Being competitive, they do not spread themselves over the territory which they serve, so as to be sought most conveniently by railway patrons, but cluster around particular corners, where they can most advantageously watch and prey upon each other.

The economic waste arising from the competition of long, circuitous, and expensive routes for traffic that would naturally go by more direct and, consequently, cheaper routes is incalculable. Freight between New York and New Orleans furnishes a ready example, though not by any means an extreme instance of this form of waste. It is actively sought by numerous lines operating entirely by water, or by water

to the ports of Norfolk, Savannah, Charleston, etc., and thence by rail; and the rates obtainable are in consequence extremely low. Yet, in spite of this fact, nearly one hundred all-rail routes are known actively to seek to secure it. Of these the shortest and most direct is by way of Philadelphia, Baltimore, Washington, Lynchburg, Bristol, and Chattanooga, the entire distance being 1340 miles. In contrast with this, the longest route, involving a haul of 2051 miles, is by way of Buffalo, New Haven (Ind.), St. Louis, and Texarkana. Estimating the cost of running a train these distances, at the average cost per train mile given by the Statistician of the Interstate Commerce Commission in his latest annual report, the cost for the shorter distance is $1431, and for the longer $2190, an excess over the minimum of necessary expenditure for each trainload carried over the longer route of $759, or 53 per cent. This illustration is fairly typical of the entire system of competitive railway transportation. While it may be true that the shortest is not necessarily the cheapest route, it cannot be doubted that a considerable saving would accrue from forwarding all traffic over whatever routes should be found by careful experiment to be the cheapest, but this can never be fully accomplished until the ruinous competition of today is restricted.

Competitive train service, both passenger and freight, is also a fruitful source of extravagant expenditure which is not accompanied by any corresponding increase in the accommodations offered the travelling and shipping public. On every day, except Saturday, when two of the slower trains are omitted, twelve passenger trains leave Chicago for Omaha. If the four lines of railway that connect these cities had established this service in accordance with a public demand, it is reasonable to suppose that the hours of departure of these trains would be distributed over the day so as to suit the convenience of those passengers whose personal engagements or predilections would lead them to choose various hours for commencing so long a journey. The fact, however, is that

of the twelve trains, four leave between 5.45 and 6.00 P.M., all reaching their destination within twenty minutes of 8.00 A.M., and five leave within fifteen minutes of 10.15 P.M. Of the remaining trains, one leaves Chicago at 9.00 A.M., one at 11.30 A.M., and one at 4.30 P.M. The average number of through passengers carried by each of these trains is less than 40, and their total mileage during a year 2,141,685. The average cost of running a passenger train one mile over these roads cannot be less than $1.00, so that if the number of trains could be reduced one-half, which would afford all necessary facilities for through and local passengers, a saving of over one million dollars would be effected.

The one and one-quarter million freight cars owned by railway companies have not cost less than $300,000,000. Supposing each car to be capable of carrying 15 tons of freight during twelve hours of each day, at the rate of 30 miles per hour, it appears that the actual service performed by each car in 1894 was equal to carrying a full load less than 4500 miles during the entire year, or, in other words, to working at its full capacity but little more than 12 days out of 365. Locomotives and other rolling stock are handled with similar wasteful disregard of the simplest rules of economic operation, and this is largely because of the necessity of attracting traffic from rival lines by moving it in small quantities, allowing cars to be used for storage purposes, etc.

Advertising, so far as it is in excess of the quantity required to furnish the information demanded by the public, involves an expense that is wholly extravagant and unnecessary, and productive of no public benefit. The wasteful extent to which it is carried on, in order to attract competitive traffic, is apparent to any observer who will examine a few of the multitudinous devices resorted to in the effort to call attention to the claims of particular lines.

It has been observed that the data relating to these wastes of competition that have been quoted are fragmentary and unsatisfactory. In many cases it has been possible to present

them only after long and tedious computation, and in few cases do they cover the entire railway system of the United States. Statistics, pointing clearly to the fact that the business of conducting transportation by rail under existing conditions of operation and management and at present rates of fare and freight is not adequately remunerative, demonstrating also that this condition is socially detrimental, because, among other reasons, it is productive of danger to life and damage to property, presenting facts from which reasonable inductions concerning the most suitable remedy may be drawn, should go further and measure the extent of the annual loss attending the continuance of existing conditions, thus making clear the exigency of the situation, and the imperative demand for reform. These wastes constitute a large and characteristic portion of the loss that inevitably accompanies competitive distribution, and their thorough and scientific investigation would be a public benefit second to none that the statistician can confer. The attendant difficulties are great, but no more insurmountable than many that have been successfully overcome in connection with other problems, and any impartial investigation would undoubtedly receive the most hearty co-operation and generous assistance from those railway officials whose records and accounts must furnish the basis for the work. The scope and cost of such an investigation remove it from among those that can be undertaken by private statisticians, while its importance as a guide to legislation would fully justify the expenditure of public money necessary to secure complete and satisfactory results. It is not probable that any of the already overburdened statistical bureaus of the federal government could now add such an amount of labor to their regular work without some additional appropriation, and it is therefore important that Congress should especially authorize the investigation, and provide suitably for meeting its necessary cost. The familiarity of the officers and clerks of the Bureau of Statistics of the Interstate Commerce Commission

with railway statistics, and the fact that many of the necessary data are already contained in the annual reports rendered to the Commission by the railways, while other important inquiries could be added to the schedules without requiring their material modification, would make it possible for the work to be carried on in that office with less additional expense than elsewhere. The deservedly high reputation for ability and fairness, sustained by the present chief of that bureau, as well as that of the Commission itself, would give authoritative weight to the final report of such an investigation, and there is, consequently, abundant reason for delegating its prosecution to the bureau that has already contributed so satisfactorily to public information regarding interstate railway transportation.